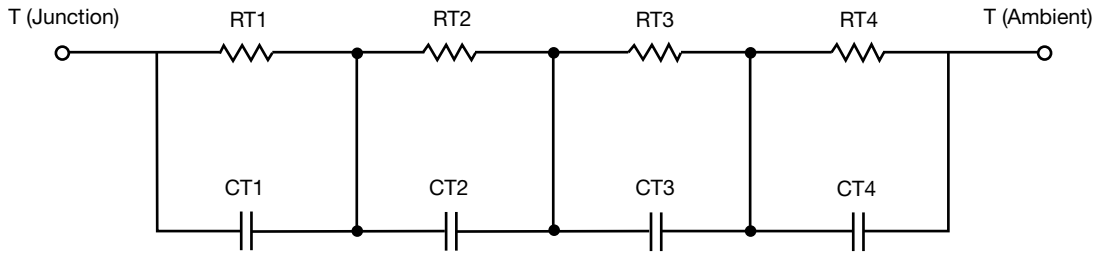
R-C Thermal Model Parameters

DESCRIPTION

The parametric values in the R-C thermal model have been derived using curve-fitting techniques. R-C values for the electrical circuit in the Foster/tank and Cauer/filter configurations are included. When implemented in PSpice, these values have matching characteristic curves to the single-pulse transient thermal impedance curves for the MOSFET.

These RC values can be used in the PSpice simulation to evaluate the thermal behavior of the MOSFET junction temperature under a defined power profile. These techniques are described in application note AN609, “Thermal Simulation of Power MOSFETs on the PSpice Platform”.

R-C THERMAL MODEL FOR TANK CONFIGURATION



R-C VALUES FOR TANK CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RT1	6.0483	547.6713m	n/a
RT2	14.3186	1.5531	n/a
RT3	9.0359	751.6178m	n/a
RT4	42.5972	647.6109m	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CT1	772.5551u	141.7706u	n/a
CT2	317.9971m	1.0436m	n/a
CT3	40.7814m	3.7493m	n/a
CT4	1.4079	15.0472m	n/a

Note

- n/a indicates not applicable

This document is intended as a SPICE modeling guideline and does not constitute a commercial product datasheet. Designers should refer to the appropriate datasheet of the same number for guaranteed specification limits.

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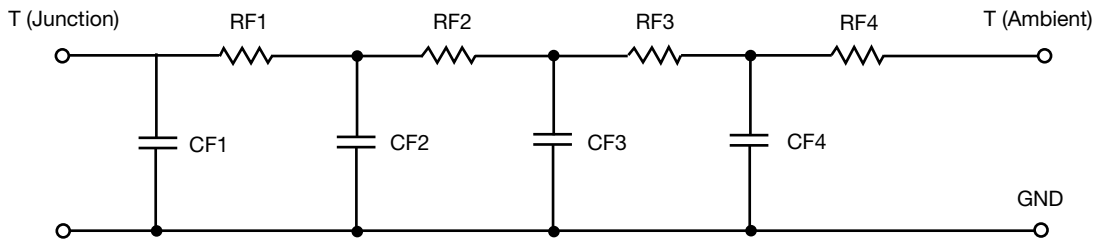
R-C THERMAL MODEL FOR FILTER CONFIGURATION



R-C VALUES FOR FILTER CONFIGURATION			
THERMAL RESISTANCE (°C/W)			
Junction to	**Ambient**	**Case**	**Foot**
RF1	6.5408	735.3365m	n/a
RF2	12.7748	677.1729m	n/a
RF3	19.3388	857.6906m	n/a
RF4	33.3456	1.2298	n/a
THERMAL CAPACITANCE (Joules/°C)			
Junction to	**Ambient**	**Case**	**Foot**
CF1	789.6835u	143.2352u	n/a
CF2	39.7127m	411.0026u	n/a
CF3	307.1005m	700.1767u	n/a
CF4	1.4419	274.9487u	n/a

Note

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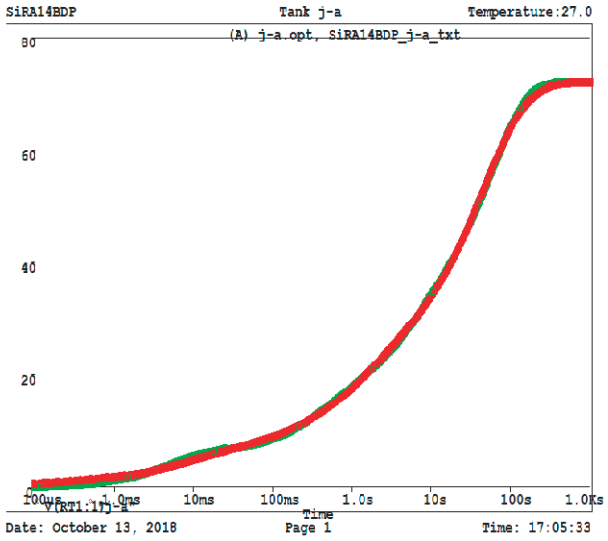

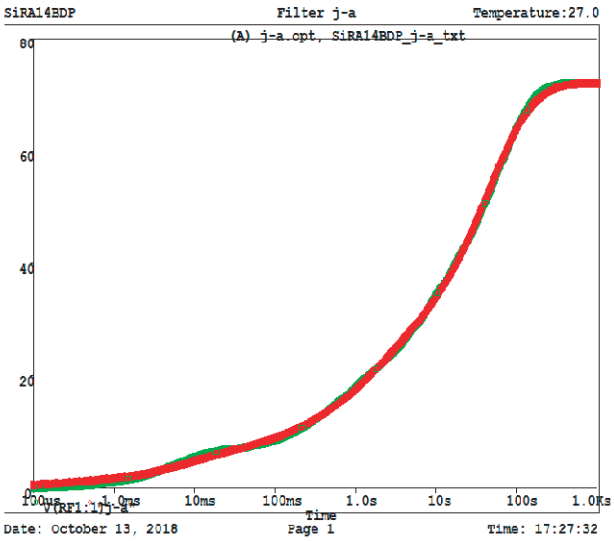

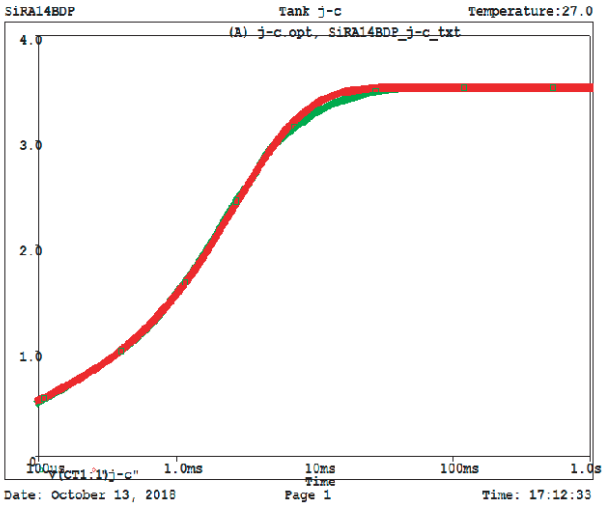

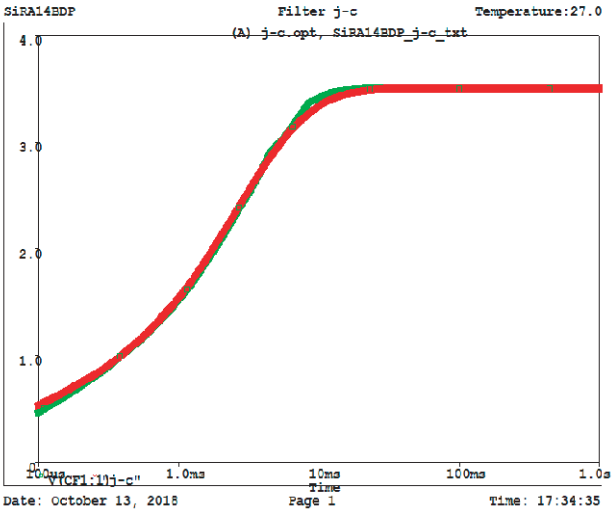

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